Two Papers on
Stability of Banking Networks

Discussion
by

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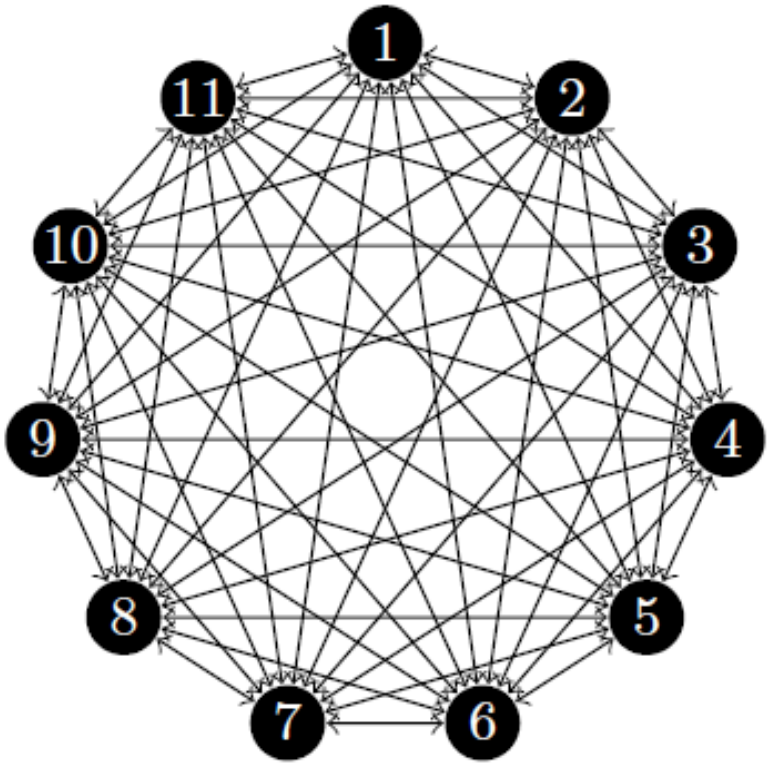
Bail-Ins and Bail-Outs: Incentive, Connectivity, and Systemic Stability by Bernard, Capponi, and Stiglitz

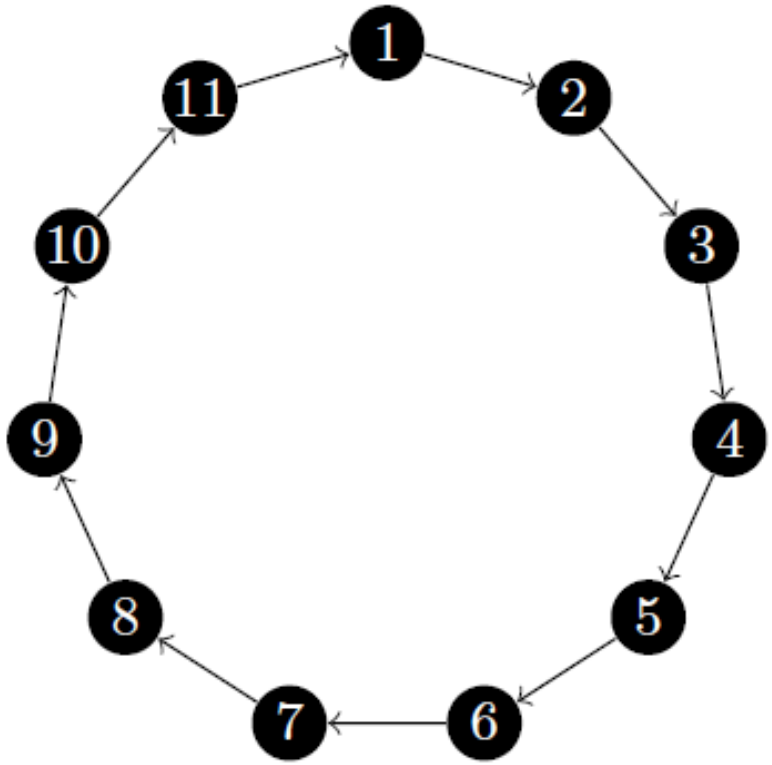
- Extends Eisenberg and Noe (2001) to include in bank network
  - Direct costs of liquidating assets and interbank borrowings.
  - Possibility of bailouts: Government (Gvt) subsidizes banks but public funding (taxation) is costly.
  - Possibility of "bail-ins:" Gvt-subsidized, voluntary bank "rescue consortium."

- Nature of the analysis
  - Network of banks can be dense (complete) or sparse (ring).
  - Assumes 1 bank is "fundamentally" insolvent, but may be contagion (cascades of defaults at other banks).
  - Gvt cannot credibly commit to an ex-post suboptimal policy.
  - Gvt minimizes welfare losses (liquidation and taxation costs) by choosing
    1. No intervention
    2. Bailout
    3. Bailin

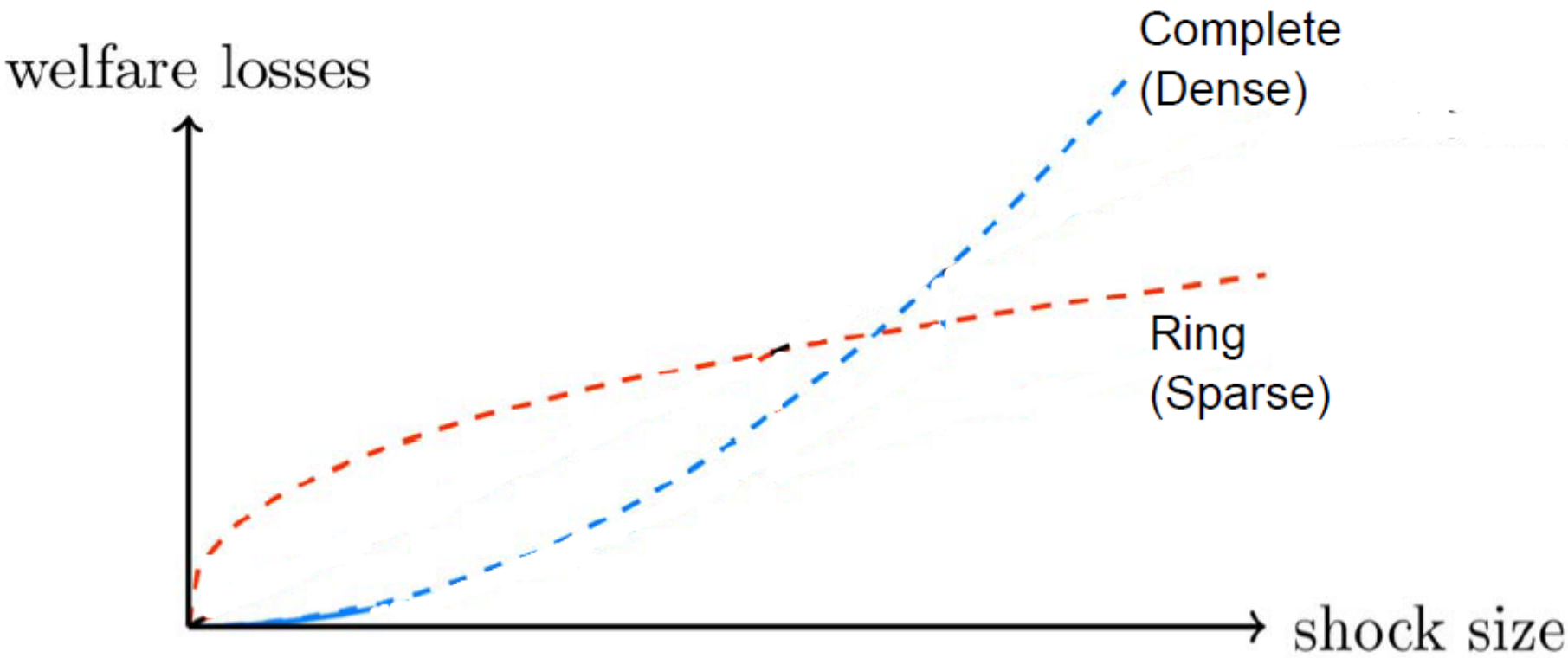
Comparing Network Topologies

- Dense (Complete) or Sparse (Ring)

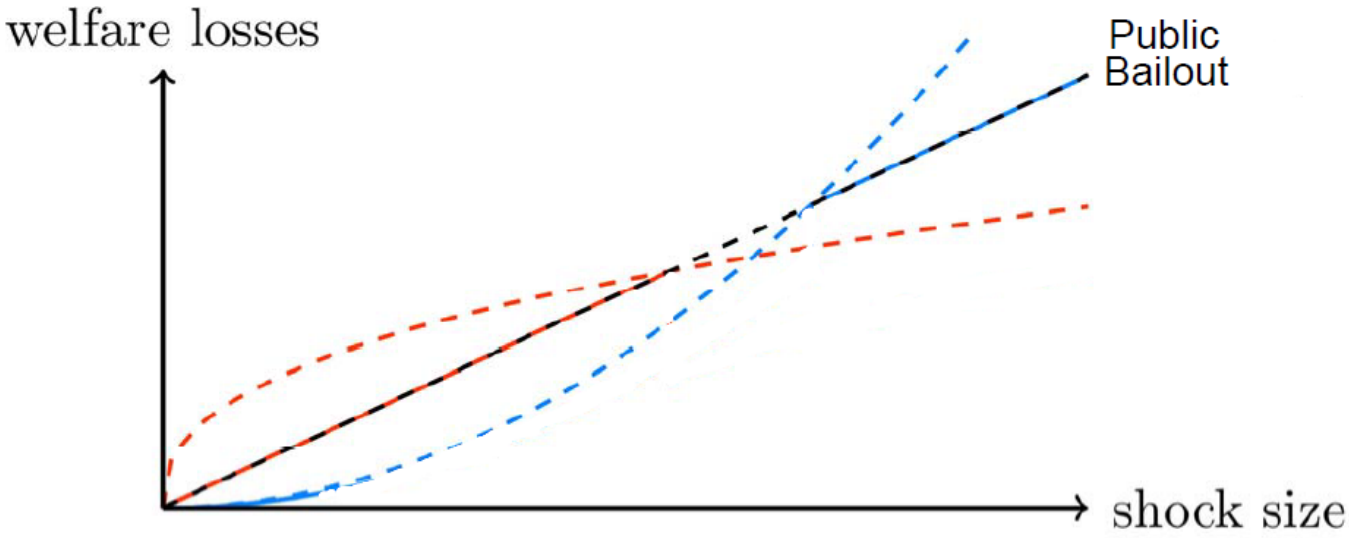


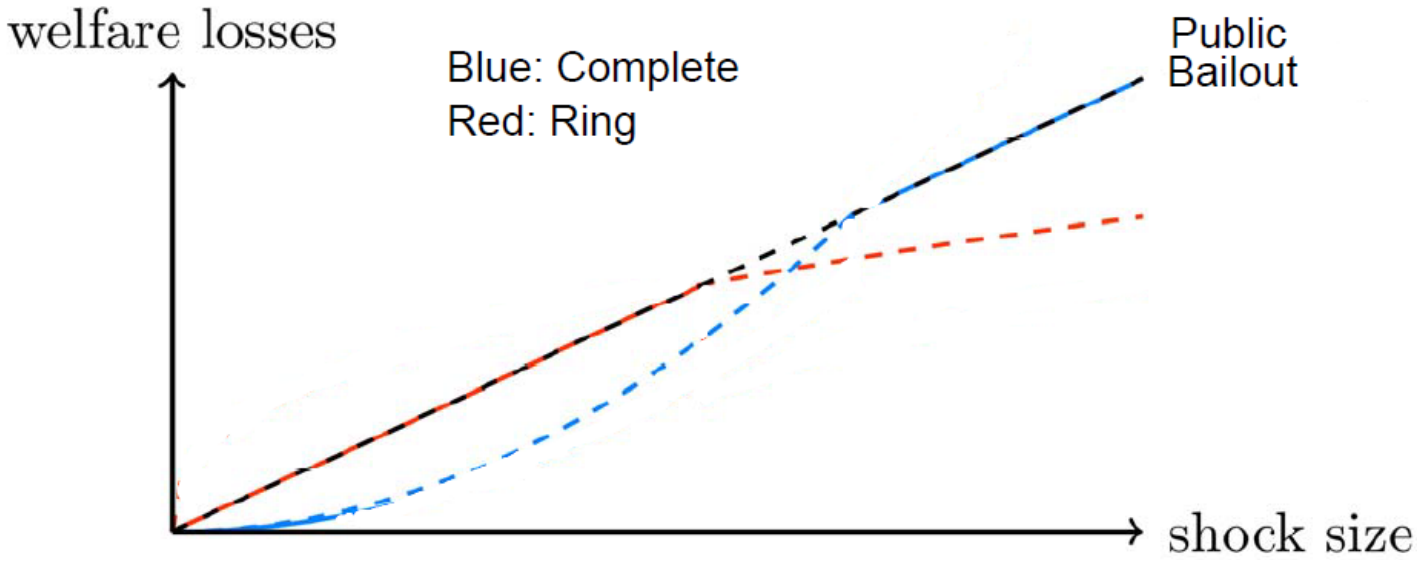


Result 1: Equilibrium with No Intervention

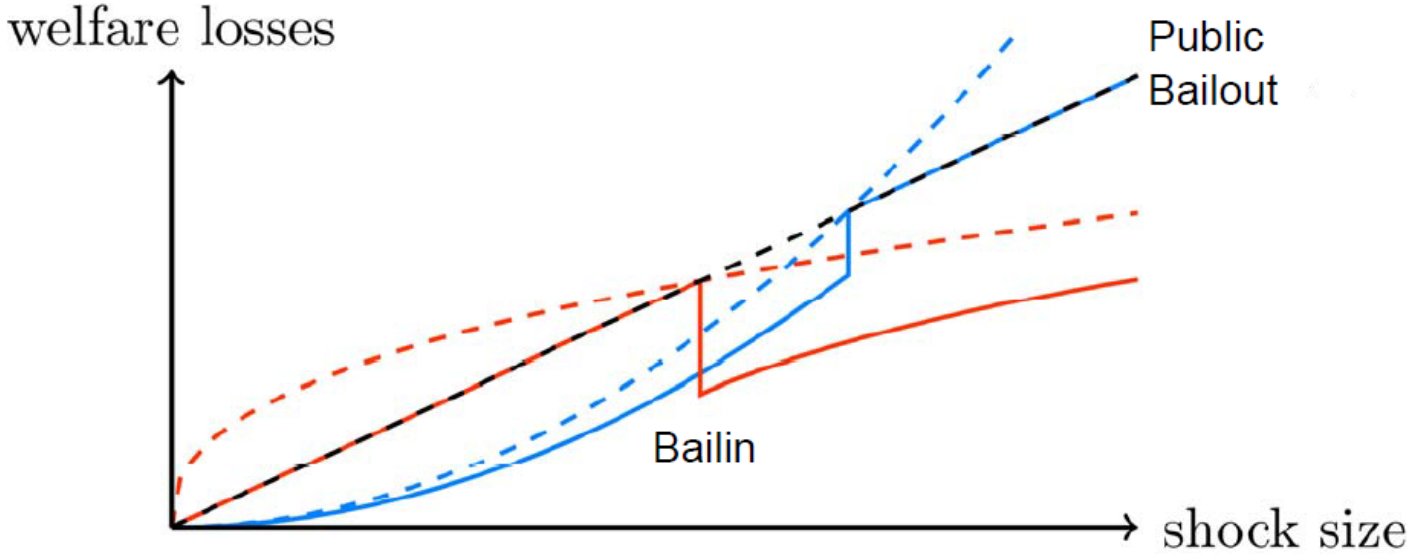


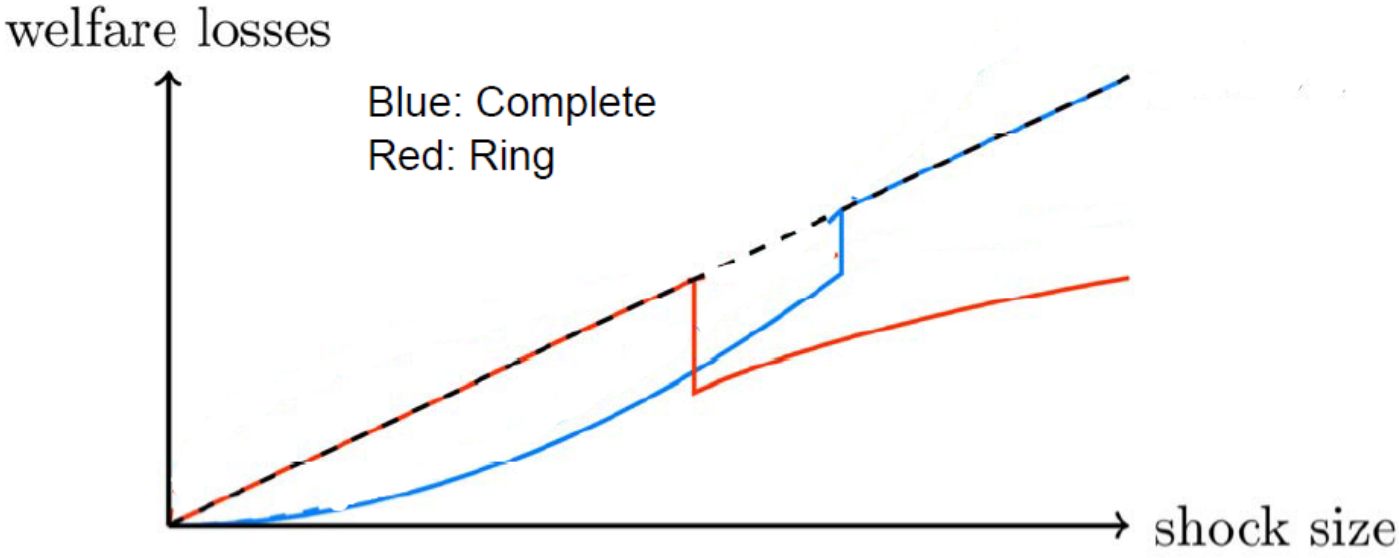
Result 2: Equilibrium with Public Bailout





Result 3: Equilibrium with Bailout and Bailin





Comment: Modeling Bail-in?

- The bailin contract is better described as a voluntary "rescue consortium."
- Prime example: Fed-organized bank rescue consortium of LTCM.
- Is Italy's bank rescue fund "Atlante" another example?
- Bailin-able debt is more likely to be longer-term than interbank claims.
- FSB's restrictions for bailin debt to count toward TLAC:
  - Remaining maturity of more than 1 year.
  - Debt held by another G-SIB does not qualify.

Comment: Banks' Incentives to Participate

- Incentives to participate in bailin may be different in a multi-period model.
- The Gvt might have greater leverage over regulated banks than the static model suggests.
- Examples:
  - All large banks were expected to take TARP funds.
  - The two institutions that refused to participate in the LTCM rescue were Bear Stearns and Lehman (nonbanks).
- In a more general model with asymmetric information, banks may participate due to concerns with contagious runs.

Comment: More/Less General Gvt Policies?

- Analysis focuses on simple, symmetric Complete and Ring topologies.
- Might more complicated topologies result in a mix of no-intervention for some banks and intervention for others?
- Example: In a core-periphery structure, might there be bailouts or bailins for core banks and no intervention for fundamentally-insolvent periphery banks?
- Dodd-Frank may restrict Gvt bailouts/subsidies.

Identifying Contagion in a Banking Network by Morrison, Vasios, Wilson, and Zikes

- Examines possible contagion from derivative counterparty risk.
- Analyzes changes in a bank's default risk when its CDS counterparties experience profits/losses.
- 2009-2013 sample of 41 banks trading UK-entity CDS
  - 28 smaller banks are net protection buyers.
  - larger dealer banks are net sellers.
- Main result: a bank's default risk increases when its CDS counterparties experience losses.
  - the CDS spread on the bank's debt measures its default risk.
  - counterparties' losses are only for their CDS positions.

Main Regression

$$R_{i,t} = \beta \Pi_{i,t} + \gamma K_{i,t} + \delta \sum_{j \neq i} \Pi_{j,t} + \zeta \sum_{j \neq i} NP^{Bank}_{i,j,t} + controls + \varepsilon_{i,t+1}$$

where

$R_{i,t} = \ln\left(CDS_{i,t} / CDS_{i,t-1}\right)$ =bank i's CDS change ($\uparrow$ risk)

$\Pi_{i,t}$ =bank i's profit on all its CDS positions

$\sum_{j \neq i} \Pi_{j,t}$ =all other banks' CDS profits

$NP^{Bank}_{i,j,t}$ =bank i's net CDS exposure to bank j.

$\sum_{j \neq i} NP^{Bank}_{i,j,t}$ = bank i's net CDS exposure to all banks

$K_{i,t} = \sum_{j \neq i} NP^{Bank}_{i,j,t} \Pi_{j,t}$ =bank i's exposures $\times$ counterparty banks' CDS profits

- A value of $\gamma < 0$ indicates contagion since exposed counterparty profits lowers bank i's default risk.

Comment: An Improved Measure of Counterparty Risk?

- The paper's key measure of counterparty risk is

$$K_{i,t} = \sum_{j \neq i} \underbrace{NP_{i,j,t}^{Bank}}_{\text{Exposure to Bank } j} \quad \underbrace{\Pi_{j,t}}_{\text{Profits of Bank } j}$$

- How bank i's default risk is changed by profits/losses of counterparty bank j should depend on bank j's probability of default, say p_j :

$$K_{i,t}^{*} = \sum_{j \neq i} \underbrace{p_{j,t-1}}_{\text{Default Probability of Bank } j} \quad \underbrace{NP_{i,j,t}^{Bank}}_{\text{Exposure to Bank } j} \quad \underbrace{\Pi_{j,t}}_{\text{Profits of Bank } j}$$

- Bank j's probability of default (EDF) can be measured by

$$p_{j,t} = \underbrace{CDS_{j,t}}_{\text{Bank } j\text{'s CDS spread}} \; / \; \underbrace{LGD_{j,t}}_{\text{Markit Estimate of } j\text{'s LGD}}$$

Comment: Seniority, Central Clearing, and Collateral

- It is not surprising that the paper finds an economically small effect of CDS counterparty contagion.
  - Senior claim: exempted from automatic stay in bankruptcy.
  - Clearing house is counterparty for centrally-cleared CDS.
  - May be collateralized (initial and variation margin).
- Suggestion: Make the paper's last set of robustness regressions that controls for central clearing the baseline regression.
- Might there be controls for differences in counterparty collateralization based on
  - dealer (less) versus non-dealer (more) bank?
  - a bank's credit rating (c.f., AIG where none if AAA)?

Conclusions

- This session's papers provide excellent insights on banking networks.
  - The social welfare cost of potentially contagious crises depends on the network topology and incentive-compatible Gvt and private resolution policies.
  - Evidence that derivative market participants are aware of the potential for contagion.
- Further research on these topics could be fruitful.